

# UKIP PARLIAMENTARY RESOURCE UNIT

## Securing the UK's energy future



# **Securing the UK's energy future**

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This is one in a series of Occasional Papers to be published by the UKIP Parliamentary Resource Unit (UKIP PRU). It is written to support the work of the UKIP Parliamentary party and to contribute to policy debate and development. Views expressed are those of the author and do not necessarily reflect those of Douglas Carswell MP or the policy of UKIP.

## **Executive summary**

From the early 1980s to the early 2000s, there was a slow, gradual fall in energy prices. Customers saw their bills fall, and their purchasing power rise, in the same way as it had risen in other sectors of the economy. For 20 years, the energy sector functioned like a successful free market.

However, in the early 2000s that trend changed. Since then, British consumers have experienced a rapid rise in energy prices - sharper, indeed, than that experienced during either of the two oil shocks of the 1970s. Fuel bills increased dramatically, but income hardly changed. Even as wholesale fuel costs, most notably the price of crude oil, have fallen recently, lower costs have largely not been passed on to the end consumer.

The primary cause of rising energy prices is misguided energy policy. Britain's energy policy is largely focused on cutting carbon dioxide emissions, and often dictated by agreements made at the European Union level. New 'green' legislation has restricted energy supply, subjected consumers to new taxes, and introduced ineffective renewable subsidies that have created perverse producer incentives. The result has been not only ever higher fuel bills that have both hurt households and cost thousands of jobs in industry, but also a capacity crisis that has raised the prospect of severe energy shortages. At the same time, the legislation has made no appreciable positive impact in alleviating the climate-related concerns it was introduced to address.

This paper will argue that Britain's energy policy fails to serve the interests of British taxpayers, consumers, and industry, and therefore needs to be overhauled. We will advocate market reforms that will cut energy costs and restore capacity, and offer an alternative approach to subsidised renewable energy to enable new technologies to flourish.

In order to secure future capacity, we will recommend abolishing EU and domestic restrictions on fossil fuel generation, enabling new gas-fired energy generation, and promoting shale gas development. To cut consumer energy bills and alleviate fuel poverty, we will propose lifting all regressive green taxes and levies by withdrawing from relevant EU directives and repealing responsible UK legislation. To redress the failure of subsidies, we will advocate the creation of a free, unsubsidised market in energy, and the restriction of state funding for renewables to basic scientific research and development.

Britain's energy policy should put British households and businesses first. The only way to restore energy security and affordability is to set the energy market free.

## **Part I: The Problems with Energy Policy**

### **1. Britain's energy capacity crisis**

Britain faces a crisis in electricity generating capacity as a direct result of both European and domestic legislation. Energy policy has both forced the closure of efficient coal-fired power stations, and engendered future dependency on unreliable and unproven renewable energy sources. This policy has been pursued despite obvious potential shortages in Britain's energy generating capacity, arising from the fact that 5 of the UK's 8 remaining nuclear power stations will reach the end of their working lives by 2023 and over 30 units of coal power capacity have been lost since January 2013.<sup>1</sup> The consequence of these policies is that Britain is at serious risk of energy shortages in the coming decade.

#### **a) EU/domestic legislation and power station closure**

Britain's industrial revolution was built on coal, and the UK still has substantial coal reserves - enough for 200 years, on some estimates. Yet both EU and domestic legislation has significantly decreased the role of coal in Britain's energy generation.

Coal power stations are targeted by EU directives aiming to close large and medium combustion plants. Domestic legislation, the Emissions Performance Standard, further bans the construction of any new coal-fired power stations unless carbon capture and storage is fully and immediately operational, which is not currently possible. This contrasts with Germany, which is equally subject to the Large Combustion Plant Directive, where the construction of new coal-fired power stations proceeds apace.

The result of this legislation has been a major decrease in Britain's energy generated by coal. More than 30 units of UK generating capacity has been lost since January 2013. Industry estimates that 8.2 GW has been lost to both UK and EU legislation since December 2012.<sup>2</sup> Although 30% of UK electricity is still produced by coal, Britain is required to close most of its efficient coal power stations, even when they would be capable of operating for many years to come (see Table 1). These power stations provide reliable, competitively priced energy and would be capable of using indigenous coal. Instead, Britain's three remaining deep, industrial coal mines finally closed in 2015, costing 2,000 jobs.

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<sup>1</sup> Department of Energy and Climate Change, Table of past and present UK nuclear reactors, accessed 26/01/2016 at: <[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/421705/Table\\_of\\_past\\_and\\_present\\_UK\\_nuclear\\_reactors.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421705/Table_of_past_and_present_UK_nuclear_reactors.pdf)>

<sup>2</sup> European Parliament, industry estimate.

**Table 1: Anticipated and actual shutdown of coal-fired power stations in the UK<sup>3</sup>**

Station	Operator	Capacity (GW)	Status
Cockenzie	ScottishPower	1.2	Closed since January 2013
Ironbridge	E.ON UK	1	Closed since January 2013
Ferrybridge (half units)	Scottish and Southern Energy	1	Closed since January 2013
Kingsnorth	E.ON UK	2	Closed since January 2013
Didcot	RWE npower	2	Closed since January 2013
Tilbury	RWE npower	1.1	Closed since January 2013
Longannet	ScottishPower	2.4	Will close by March 2016
Eggborough	Eggborough Power Ltd	1.96	Will close by March 2016
Ferrybridge (remaining units)	Scottish and Southern Energy	1	Will close by March 2016

Further capacity is likely to be lost as certain power stations close ahead of schedule. In December 2015, Scottish and Southern Energy (SSE) failed to secure a subsidy contract for Fiddler's Ferry coal power station in the Government's capacity market auction for winter 2019-20. In 2014, SSE secured a contract to guarantee three of the plant's four units could remain operating, but the company may decide to close all four because the costs of keeping them open without subsidy (thanks to carbon taxes) may be greater than the fines received for breaching the existing contract. The Fiddler's Ferry plant in Cheshire produces 2GW electricity, enough to power two million homes.<sup>4</sup>

## **b) EU regulations and renewables**

The European Union's commitment to becoming a leading emissions-reducer in the world also impacts upon renewable energy generation. In addition to the Large Combustion Plant Directive which limits energy generated from fossil fuels, the EU demands that Britain source at least 15% of its total energy consumption from renewables by 2020.<sup>5</sup>

In practical terms, most of the shift toward renewable energy will come from electricity generation, and the UK Government's preferred choice is currently wind power. This means that Britain will require (depending on average size per turbine) around 4,500 on-shore and 6,000 off-shore wind turbines by 2020.

<sup>3</sup> European Parliament, industry estimates.

<sup>4</sup> E. Gosden, "Energy security threat as SSE mulls early closure of coal plant", *Daily Telegraph*, 28 January 2016, accessed 29/01/2016 at: <http://www.telegraph.co.uk/finance/newsbysector/energy/12128668/Energy-security-threat-as-SSE-mulls-early-closure-of-coal-plant.html>

<sup>5</sup> Department of Energy and Climate Change, *UK Renewable Energy Roadmap*, July 2011, accessed 25/01/2016 at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/48128/2167-uk-renewable-energy-roadmap.pdf#page=5](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48128/2167-uk-renewable-energy-roadmap.pdf#page=5)

However, reliance on wind power is high-risk, because wind power is almost completely unpredictable. At the start of January 2016, the Balancing Mechanism Reporting System used by the National Grid (which publishes the variations in how electricity is generated in the UK on a two-hourly basis) recorded wind generating as much as 23.5% of the UK's total electricity output, and as little as 4.5% in the space of one week, with an average reading of 11%.<sup>6</sup> The amount of energy that wind can generate fluctuates wildly. If British lights are to be kept on, a conventional reserve is required as a backup generating source. Usually, this is gas. However, with conventional power stations closing without being replaced, there is a danger that the UK will run out of capacity to back up wind. The shift to renewables is therefore exacerbating the energy capacity crisis.

## **2. Spiralling consumer costs**

The rise in energy prices in recent years is also a direct result of both EU and UK Government legislation. In addition to raising costs indirectly through the restriction of capacity, legislation has raised costs directly through new fiscal measures aimed at reducing carbon dioxide emissions. The rise in prices has already significantly affected energy consumers, and has exacerbated fuel poverty. Prices for both electricity and gas are considerably higher than those faced by consumers in other comparable economies (see figures 1 and 2 below). Without policy reform, upward pressure on both energy prices and fuel poverty will continue.

Industry, especially the energy-intensive steel industry, has also been affected. Over 1,200 jobs are expected to be cut at Tata Steel's plant in Port Talbot.<sup>7</sup> The Dalzell, Clydebridge and Scunthorpe plants are also likely to suffer severe job losses in coming months.<sup>8</sup> The few steel plants that do still operate in the UK can only process imported steel, rather than manufacturing their own.<sup>9</sup> High energy prices have been persistently cited as one of the main reasons for the industry's problems.<sup>10</sup>

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<sup>6</sup> My Grid GB, @myGridGB, accessed 26/01/2016 at: <<https://twitter.com/myGridGB>>

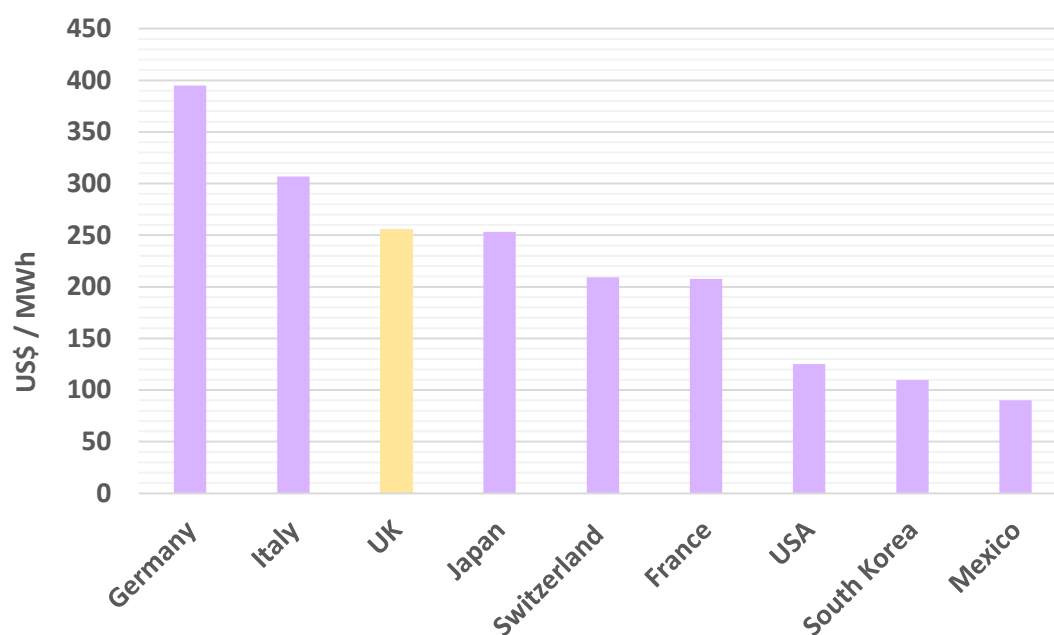
<sup>7</sup> R. Turner, "Steel industry braced for more cut backs with Tata expected to axe 1,200 jobs", *Wales Online*, 16 October 2015, accessed 02/02/2016 at: <<http://www.walesonline.co.uk/business/business-news/steel-industry-braced-more-cut-10278132>>

<sup>8</sup> Ibid.

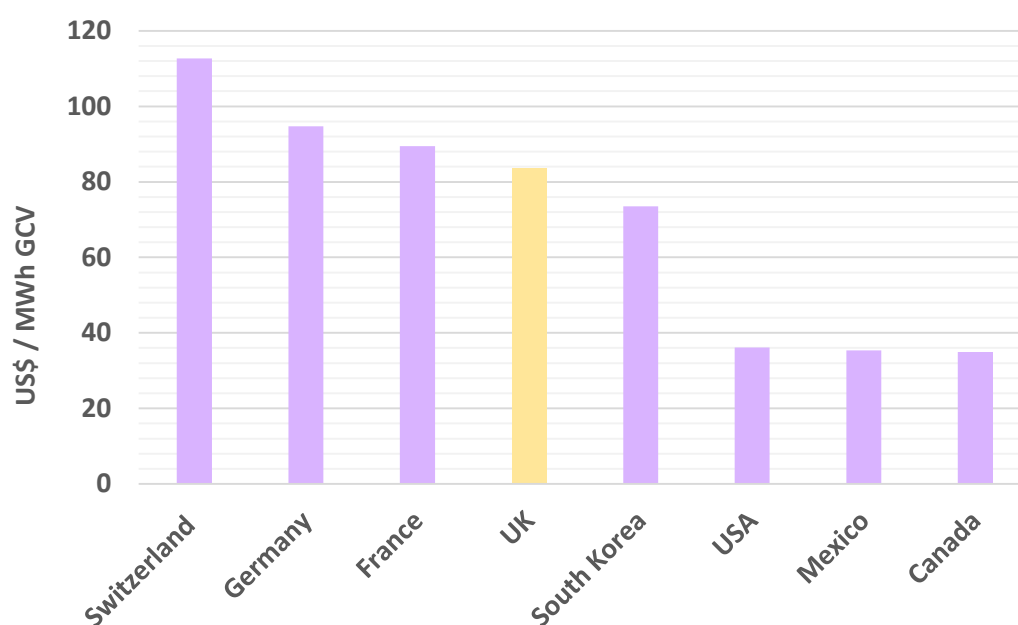
<sup>9</sup> S. Farrell, "Welsh steel mill to reopen after two years out of operation", *Guardian*, 15 October 2016, accessed 02/02/2016 at: <<http://www.theguardian.com/business/2015/oct/15/liberty-steel-newport-welsh-mill-reopen>>

<sup>10</sup> Ibid.

**Figure 1: Comparative household electricity prices in selected countries, 2015<sup>11</sup>**



**Figure 2: Comparative household natural gas prices in selected countries, 2015<sup>12</sup>**



<sup>11</sup> International Energy Agency, *Key World Energy Statistics 2015*, accessed 26/01/2016 at: [http://www.iea.org/publications/freepublications/publication/KeyWorld\\_Statistics\\_2015.pdf](http://www.iea.org/publications/freepublications/publication/KeyWorld_Statistics_2015.pdf)  
Omissions are due to a lack of data.

<sup>12</sup> International Energy Agency, *Key World Energy Statistics 2015*, accessed 26/01/2016 at: [http://www.iea.org/publications/freepublications/publication/KeyWorld\\_Statistics\\_2015.pdf](http://www.iea.org/publications/freepublications/publication/KeyWorld_Statistics_2015.pdf)  
Omissions are due to a lack of data.

### **a) Costs of EU energy policy**

The EU has directly raised energy costs for energy consumers. The EU's Emissions Trading Scheme (ETS) requires companies such as electricity generators to buy permits to emit carbon dioxide or face equivalent fines. According to EU statistics, the ETS increased UK family fuel bills by £73 in 2010 and was projected to climb every year subsequently.<sup>13</sup> Businesses – particularly energy intensive industries – have been even more adversely affected, with several moving production abroad to escape higher costs.<sup>14</sup> The ETS has also had the perverse effect of transferring money from British to continental companies, as the UK is the only member state to carry out routine tax inspections of those using the scheme.<sup>15</sup>

In order to underpin the functioning of the Emissions Trading Scheme in the UK, the Government introduced a minimum carbon price “floor” in the 2011 budget, which has not only raised the cost of electricity but also functioned as a de facto subsidy to nuclear energy companies.

The combined cost of the EU ETS and the UK Government carbon price floor was estimated to be about £112 annually per household in 2013.<sup>16</sup>

### **b) Costs of UK Government policy**

The UK Government has also introduced its own anti-carbon dioxide legislation which has independently raised the electricity prices. The main costs are the result of the 2008 Climate Change Act. One of the most expensive acts ever passed in peacetime, the act imposed annual costs of £18 billion to be borne by energy consumers until 2050.<sup>17</sup>

In addition, the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme, the UK's first carbon trading scheme for non-energy-intensive organisations, has subjected up to 5,000 organisations using 6,000 megawatts of electricity per year to a tax of £12 per ton of carbon dioxide incurred.<sup>18</sup> This adds c.£1 million annually to the electricity bill of an organisation like a large university, or an airport the size of Edinburgh. Yet the tax itself is not the only cost: organisations typically require legal consultants to advise them on compliance. The scope of CRC is set to widen, eventually obliging the commercial buildings of small and medium businesses to comply with the scheme as well.<sup>19</sup>

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<sup>13</sup> M. Sinclair, *Let Them Eat Carbon*, 2011, p.52

<sup>14</sup> L. Mittal, “Rewrite energy policy and re-industrialise Europe”, *Financial Times*, 20 January 2014

<sup>15</sup> A. Gilligan, “Emission impossible as EU fails to police main anti-pollution scheme”, *Daily Telegraph*, 29 November 2015, accessed 26/01/2016 at: <<http://www.telegraph.co.uk/news/earth/energy/12022964/Emission-impossible-as-EU-fails-to-police-main-anti-pollution-scheme.html>>

<sup>16</sup> Department of Energy and Climate Change, *Estimated impacts of energy and climate change policies on energy prices and bills*, March 2013, accessed 29/01/2016 at: <[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/172923/130326\\_-\\_Price\\_and\\_Bill\\_Impacts\\_Report\\_Final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/172923/130326_-_Price_and_Bill_Impacts_Report_Final.pdf)>

<sup>17</sup> C. Booker, “MPs have no idea what the Climate Change Act means”, *Daily Telegraph*, 21 Jul 2012, accessed 25/01/2016 at: <<http://www.telegraph.co.uk/comment/9416805/MPs-have-no-idea-what-the-Climate-Change-Act-means.html>>

<sup>18</sup> Gov.uk, CRC Energy Efficiency Scheme: qualification and registration, 8 April 2014, accessed 25/01/2016 at: <<https://www.gov.uk/guidance/crc-energy-efficiency-scheme-qualification-and-registration>>

<sup>19</sup> European Parliament, “Capping emissions from medium-sized combustion plants”, press release, 7 October 2015, accessed 26/01/2016 at: <<http://www.europarl.europa.eu/news/en/news-room/20151002IPR95362/Capping-emissions-from-medium-sized-combustion-plants>>



The Government's feed-in tariffs for household energy producers also negatively affect the majority of consumers. Households that use solar PV panels on south-facing roofs and feed the electricity into the national grid are paid at above market rate for the energy they produce. Payments are guaranteed for 20-25 years (depending on start date), tax-free and index linked.<sup>20</sup> Yet the costs of these payments are borne by other consumers, with Ofgem highlighting that the average householder subsidises the small group of producers.<sup>21</sup>

### **c) Green policies and fuel poverty**

Because green taxes and levies are regressive, they disproportionately affect the poorest households. One of the consequences of green legislation has therefore been to exacerbate fuel poverty in the UK. By 2009, over 4 million households in England were classified as being in fuel poverty; that is they spent over 10 per cent of their disposable income on fuel.<sup>22</sup> That figure equated to 18 per cent of UK households, three times the number of households that were in fuel poverty in 2003.

Available evidence shows the situation has not significantly improved since 2009. The Coalition's alterations to the calculation of fuel poverty make direct comparisons to 2009 figures impossible. However, new statistics compiled in the last year indicate that, in 2013, 10.4 per cent of households (2.35 million) officially lived in fuel poverty, only a slight reduction from the same measurement in 2012.<sup>23</sup> This is in spite of Government support to the poorest households, including via the Warm Home Discount. In 2013, the Energy and Climate Change Select Committee stated in its report on Fuel Poverty: "We conclude that the increasing use of levies on bills to fund energy and climate policies is problematic since it is likely to hit hardest those least able to pay."<sup>24</sup>

The Department of Energy and Climate Change (DECC)'s own predictions show that by 2020 households on the lowest incomes can expect to see their energy bills increase further. The continuation of regressive green levies therefore threatens to subject even more households to fuel poverty.

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<sup>20</sup> Energy Saving Trust, Feed-in Tariffs, accessed 26/01/2016 at: <<http://www.energysavingtrust.org.uk/feed-tariffs>>

<sup>21</sup> Ofgem, Updated Household energy bills explained, February 2013, accessed 26/01/2016 at:

<[https://www.ofgem.gov.uk/sites/default/files/docs/2013/01/household\\_energy\\_bills\\_explained\\_udjuly2013\\_web.pdf#page=3](https://www.ofgem.gov.uk/sites/default/files/docs/2013/01/household_energy_bills_explained_udjuly2013_web.pdf#page=3)>

<sup>22</sup> Department of Energy and Climate Change, *Annual report on fuel poverty statistics 2009*, page 8, accessed 20/01/2016 at:

<[http://webarchive.nationalarchives.gov.uk/20121217150421/http://decc.gov.uk/assets/decc/statistics/fuelpoverty/1\\_20091020153241\\_e\\_@@\\_annualreportfuelpovertystats2009.pdf#page=8](http://webarchive.nationalarchives.gov.uk/20121217150421/http://decc.gov.uk/assets/decc/statistics/fuelpoverty/1_20091020153241_e_@@_annualreportfuelpovertystats2009.pdf#page=8)>

<sup>23</sup> Department of Energy and Climate Change, *Annual Fuel Poverty Statistics Report, 2015*, page 6, accessed 20/01/2016 at:

<[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/468011/Fuel\\_Poverty\\_Report\\_2015.pdf#page=6](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/468011/Fuel_Poverty_Report_2015.pdf#page=6)>

<sup>24</sup> Energy & Climate Change Select Committee, *Energy Prices, Profits and Poverty - Energy and Climate Change*, 29 July 2013:

< <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenergy/108/10808.htm>>

### 3. The failure of subsidies

The aim of the subsidy regime, mentioned in previous sections, is to shift away from fossil fuels to produce non-carbon-based electricity generation that is viable in the long-term. However, the evidence suggests this goal will not be achieved. It is unclear how energy suppliers that have received guaranteed strike prices for nuclear and renewable energy that far exceed market rates would survive without subsidies. According to the Government's own figures, conventional sources of energy are likely to remain the most cost-effective for some years to come (see table 2).

Moreover, many energy suppliers have been unable to function viably even under the current subsidy regime. Instead of providing initial capital for viable non-carbon energy sources, the subsidy regime has removed the suppliers' incentive to deliver energy securely and at market rates. It has therefore not only failed to promote but actively undermined both the competitiveness and the viability of non-carbon energy sources in the long-term.

**Table 2: Levelised (relative) cost estimates for projects starting in 2019, 10% discount rate:<sup>25</sup>**

£/MWh

Central levelised Costs £/MWh	Pre-development costs	Capital costs	Fixed O&M	Variable O&M	Fuel costs	Carbon costs	CO2 transport and storage	Decomm and waste fund	Total levelised cost
Nuclear - FOAK <sup>26</sup>	5	56	10	3	5	0	0	2	80
Gas - CCGT <sup>27</sup>	0	9	4	0	49	24	0	0	85
Gas CCGT with post comb CCS <sup>28</sup> FOAK	1	21	4	2	56	4	7	0	95
Onshore wind >5MW	7	68	19	5	0	0	0	0	99
Gas ASC with oxy comb. CCS FOAK	1	37	8	2	36	5	18	0	107
Offshore wind Round 2	4	75	27	1	0	0	0	0	107
Offshore wind Round 3	6	78	30	0	0	0	0	0	114
Large scale solar PV	0	100	23	0	0	0	0	0	123
Coal IGCC <sup>29</sup> with CCS FOAK	1	53	19	0	36	7	17	0	134
OCGT	5	54	23	0	74	35	0	0	190

<sup>25</sup> Department of Energy and Climate Change, *Electricity Generation Costs 2013*, 19 Dec 2013, accessed 20/01/2016 at: <[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/223940/DECC\\_Electricity\\_Generation\\_Costs\\_for\\_publication\\_-\\_24\\_07\\_13.pdf#page=19](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/223940/DECC_Electricity_Generation_Costs_for_publication_-_24_07_13.pdf#page=19)>

<sup>26</sup> First of a kind.

<sup>27</sup> Combined Cycle Gas Turbine.

<sup>28</sup> Carbon Capture and Storage.

<sup>29</sup> Integrated Gasification Combined Cycle.

## a) Renewables

Subsidies for renewables are a significant cost to energy consumers, and successive governments have allowed the burden to increase. Yet they have failed to deliver viable renewable technology.

Successive governments have failed to control the costs of renewable subsidies. Renewable energy generation is subsidised in part via the Renewable Obligation (RO), which is subject to the Levy Control Framework (LCF). The LCF was introduced in 2011 to cap the cost of levy-funded subsidies. However, it makes provision for a significant increase in costs every year until 2020. The cap was intended to quadruple from £2 billion in 2011-12 to £7.6 billion in 2020-21 (in 2011 prices).<sup>30</sup> In fact, in 2015 the Government forecast that the actual spend in 2020-21 would exceed the intended cap by £1.5 billion, totalling £9.1 billion in 2011 prices.<sup>31</sup>

In a stated effort to control costs, the current Government has declared its intention to end new subsidies for onshore wind and exempt new onshore wind from the RO. Yet DECC estimates that the new cost controls will only reduce the projected overspend by £400-500 million in nominal (rather than 2011 prices), thus reducing the overspend by less than a third and failing to meet the cap.<sup>32</sup> Contrary to ministerial claims that the Government “will always be working towards making technologies subsidy free,” current changes to policy leave the existing subsidy regime essentially intact.<sup>33</sup>

Despite the scale of the subsidy expense, it is far from evident that subsidies are producing viable renewable technology that could ultimately survive without subsidy. Because of the need for back-up from conventional gas power stations, wind power is inherently uncompetitive compared with fossil fuels. The increase in wind power generation means that the UK pays twice for the same capacity — once for the wind turbines, and again for the back-up. A study by Edinburgh University demonstrated that the capital costs of wind plus gas back-up are up to ten times that of gas alone; that the net reductions in carbon dioxide emissions are trivial, and the return on capital invested in wind plus back-up is around 0.5%.

Subsidies have also often failed to produce a secure renewable manufacturing base. Vestas, the world’s largest wind turbine manufacturer, is a case in point. Vestas has oscillated between hiring and firing workers at UK plants on an almost annual basis. In 2012, Vestas scrapped plans to build an offshore wind factory in Sheerness in Kent, potentially employing 1,600 people, complaining about a lack of confirmed orders.<sup>34</sup> The

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<sup>30</sup> National Audit Office, *The Levy Control Framework*: <<https://www.nao.org.uk/report/levy-control-framework-2/>>

<sup>31</sup> Lord Bourne of Aberystwyth & DECC, *Written Ministerial Statement to the Lords on the Levy Control Framework*, 22 July 2015: <<https://www.gov.uk/government/speeches/levy-control-framework-cost-controls>>.

<sup>32</sup> The Rt Hon Amber Rudd MP & DECC, *Changes to Renewables Subsidies (Press Release)*, 17 December 2015: <<https://www.gov.uk/government/news/changes-to-renewables-subsidies>>

<sup>33</sup> Andrea Leadsom MP, *House of Commons Hansard*, 7 January 2016:

<[http://www.publications.parliament.uk/pa/cm201516/cmhansrd/cm160107/debtext/160107-0001.htm#160107-0001.htm\\_spnew88](http://www.publications.parliament.uk/pa/cm201516/cmhansrd/cm160107/debtext/160107-0001.htm#160107-0001.htm_spnew88)>

<sup>34</sup> J. Shankleman, “Vestas scraps Kent offshore wind factory plan”, *The Guardian*, 22 June 2012, accessed 19/01/2016 at: <<http://www.theguardian.com/environment/2012/jun/22/vestas-kent-offshore-wind>>

plant was given formal permission to go ahead only two months earlier.<sup>35</sup> Vestas also closed a plant making onshore turbines at Newport on the Isle of Wight in 2009 with the loss of 625 jobs.<sup>36</sup> This year, Vestas has complained that UK rules hamper their latest turbine designs, and warned (as they had previously in 2012) that jobs could be lost without further subsidy.<sup>37</sup>

Evidence from other countries likewise suggests subsidies are generally ineffective at producing viable renewable technology. In the United States in 2010, President Obama touted solar-PV company Solyndra as a textbook example of renewables and green jobs: it has since gone bankrupt. Similarly, in China, solar PV manufacturers have faced crises as demand fails to match projections and prices slip below costs.

Claims that green technology is economically beneficial and create employment have also been shown to be largely unfounded. *Worth the Candle?*, a recent report by Verso Economics, demonstrated that for every job created in the renewable sector in the UK, four jobs are destroyed elsewhere in the economy by rising energy costs and deterred investment.<sup>38</sup> Similarly, a Spanish study on the effects of renewable subsidies on employment in Spain found subsidy costs of €600,000 per job created.<sup>39</sup> In the USA, a *Washington Post* investigation into Solyndra found that the ratio of subsidies to jobs was \$5 million to one.

Renewable subsidies, therefore, have not proven to be an effective means of developing viable renewable energy generation. The outcome of subsidies is not proportionate to their cost.

## **b) Nuclear**

The UK Government does not only subsidise renewable technology. It also subsidises nuclear power. These subsidies have likewise enabled energy suppliers to sell energy at inflated prices but failed to make nuclear power commercially viable without subsidies in the long term.

The UK Government's deals with foreign governments and suppliers to build new nuclear power stations rely on subsidies both from the taxpayer and the consumer. The new Hinkley Point nuclear power station deal struck in September last year announced a £2 billion taxpayer subsidy for construction (by French and Chinese state-owned energy firms) and estimated the Government would have to pay a minimum price for energy of

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<sup>35</sup> "Vestas wind turbine plant in Kent given approval", BBC News, 25 May 2012, accessed 20/01/2016 at: <<http://www.bbc.co.uk/news/uk-england-kent-18202975>>

<sup>36</sup> A. Evans-Pritchard, "Britain abandons onshore wind just as new technology makes it cheap", *Daily Telegraph*, 10 January 2016, Accessed 19/01/2016 at: <<http://www.telegraph.co.uk/finance/economics/12090394/Britain-abandons-onshore-wind-just-as-new-technology-makes-it-cheap.html>>

<sup>37</sup> "Isle of Wight: occupation of Vestas wind turbine factory ends", *Daily Telegraph*, 7 August 2009, accessed 19/01/2016 at: <<http://www.telegraph.co.uk/news/earth/energy/windpower/5988852/Isle-of-Wight-occupation-of-Vestas-wind-turbine-factory-ends.html>>

18 workers occupied the buildings for a number of weeks afterwards and demanded the Government nationalise the factory.

<sup>38</sup> R. Marsh & T. Miers, *Worth the Candle? The Economic Impact of Renewable Energy Policy in Scotland and the UK*, Verso Economics, March 2011, accessed 19/01/2016 at: <<http://www.scientific-alliance.org/sites/default/files/WORTHTHECANDLE.pdf>>

<sup>39</sup> G. Calzada Álvarez, *Study on effects on employment of public aid to renewable energy sources*, March 2009, accessed 19/01/2016 at: <<http://instituteeforenergyresearch.org/wp-content/uploads/2015/05/090327-employment-public-aid-renewable.pdf>>

£89.50/MWh, double the current average wholesale price of £44.72/MWh. Moreover, the strike price is indexed to general inflation and is therefore likely to rise significantly over the project lifetime, even if the price of energy generated from other sources falls. Commentators have described the plant as “the most expensive power station in the world”.<sup>40</sup> Others cited a parallel deal done in France by Ineos for only £37.94/MWh about a similar time.<sup>41</sup> The Ineos Chief Executive himself said the Hinkley price of £89.50/MWh would be prohibitively expensive for industry.<sup>42</sup> It is difficult to maintain that this represents value for money.

The Hinkley Point deal also entails serious risks in terms of reliability. Both France and China, are undergoing economic problems and have a track record of failure when it comes to delivering energy infrastructure on-time, on-budget, and within safety regulations. Taxpayer support for Hinkley Point risks subsidising inefficient energy generation over which the Government can exert only limited control. Even in the last few weeks, news is that French Government-owned EDF Energy has delayed its investment decision at Hinkley Point. As the company scrabbles around for adequate funds, the danger is that even at this late stage, the project could be scrapped.<sup>43</sup>

### **c) The facts of fossil fuel subsidies**

Many green advocates contend that the Government subsidises fossil fuels as much as renewables and nuclear. Yet this argument is not borne out by the facts.

Although producers of highly polluting diesel do benefit from the Government’s capacity subsidies, fossil fuels in general are not subsidised in the same way as non-carbon fuels. A recent report by the Overseas Development Institute found that the Government subsidises production to the tune of £5.9 billion, mostly within foreign-owned companies, while £3.7 billion is used to subsidise fossil fuel production overseas in countries including Russia, Saudi Arabia and China.

However, what the Overseas Development Institute report refers to as “subsidies” are mainly tax breaks designed to promote development and exploration of fuels that usually yield high returns. New tax breaks for North Sea oil and gas production announced by the Chancellor in 2015 will cost taxpayers a further £1.7 billion by 2020.<sup>44</sup> Yet the preferential tax treatment of fossil fuel energy suppliers is not comparable to the direct subsidies for renewables, which artificially maintain an industry that would otherwise be lossmaking and unviable. Nonetheless, this is from many perspectives still far from a free market.

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<sup>40</sup> S. Farrell, “Hinkley Point: nuclear power plant gamble worries economic analysts,” *Guardian*, 30 October 2013, accessed 22/01/2016 at: <<http://www.theguardian.com/environment/2013/oct/30/hinkley-point-nuclear-power-plant-uk-government-edf-underwrite>>

<sup>41</sup> “Ineos boss says Hinkley nuclear power too expensive”, *BBC News*, 16 December 2013, accessed 22/01/2016 at: <<http://www.bbc.co.uk/news/business-25390456>>

<sup>42</sup> *Ibid.*

<sup>43</sup> E. Gosden, H. Samuel, “Hinkley Point go-ahead delayed amid EDF funding doubts”, *Daily Telegraph*, 26 Jan 2016, accessed 28/01/2016 at: <<http://www.telegraph.co.uk/finance/newsbysector/energy/12123674/Hinkley-Point-go-ahead-delayed-amid-EDF-funding-doubts.html>>

<sup>44</sup> Overseas Development Institute, *Empty Promises: G20 subsidies to oil, gas and coal production*, November 2015, accessed 18/01/16 at: <<http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9957.pdf>>

#### 4. The failure to combat carbon dioxide emissions

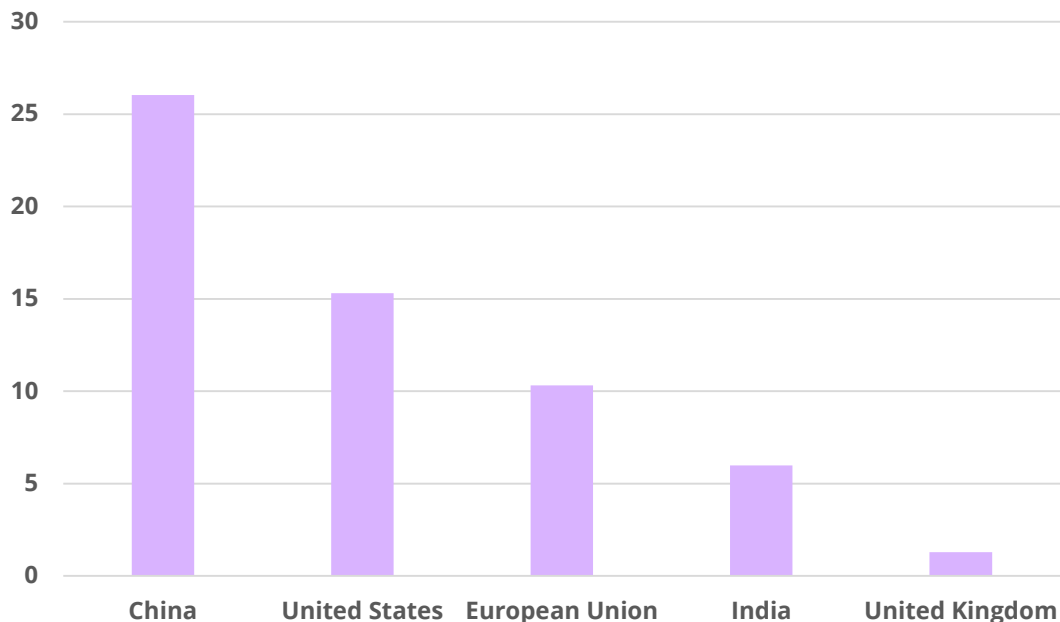
In addition to introducing risks to capacity, the rise in cost to consumers, and the failures of subsidies to produce viable non-fossil-fuel technology, anti-carbon dioxide policies have failed to achieve their key objective: reducing carbon dioxide emissions. The EU's Emissions Trading Directive is intended to offset European emissions against those of developing countries. However, the data shows that this calculus is a long way from zero-sum: European carbon dioxide emissions are increasingly irrelevant as a share of global emissions, while those of developing countries have soared in recent years.

The UK produces less than two per cent of worldwide carbon dioxide emissions (see figure 3 below). The EU countries together produce 12 per cent. Yet China builds a new coal-fired power station every week and produces about 26 per cent of global emissions. India is also accelerating its development and needs to build new power stations; its six per cent share of global emissions will inevitably rise. In addition, the USA (c.15 per cent emissions) is enjoying a new industrial renaissance based on cheap, indigenous shale gas — and is recovering more oil from tar sands.

Indeed, the EU regulations are not necessarily cost-effective even in combatting carbon dioxide emissions within Europe. A response by Professor Stephen Bush of Prosyma Research Ltd. to a National Grid consultation argued the UK could achieve EU targets more cheaply, and more securely by a combination of more conventional sources.<sup>45</sup>

Consequently, the negative effects of UK and European energy policy are grossly disproportionate to any positive effect it has on limiting global carbon dioxide emissions.

**Figure 3: Percentage of global carbon dioxide emissions by territory (2011)<sup>46</sup>**



<sup>45</sup> Prof. S. Bush and D.R. MacDonald, Prosyma Research Ltd., *Maintenance of United Kingdom Electricity Supplies to the year 2020 and Proposals for a Secure Energy Strategy to 2050*, 12 August 2009, accessed 25/01/2016 at: <<http://britain-watch.co.uk/wp-content/uploads/2009/10/GridPaper6.pdf>>

<sup>46</sup> Compiled via World Development Indicators, "Carbon dioxide emissions by territory", World Bank, 2011, accessed 22/01/2016 at: <<http://data.worldbank.org/indicator/EN.ATM.CO2E.KT>>

## **Part II: Securing Britain's energy future: the solutions**

### **1. Create capacity: switch to gas**

Britain cannot secure its energy capacity under existing legislation. To prevent an energy shortage, Britain needs to reverse the closure of coal-fired power stations and enable the construction of new gas-fired power stations. Doing so requires withdrawing from the EU's Large Combustion Plant Directive and abolishing the Emissions Performance Standard.

New gas-fired capacity is a necessity given the urgency of the UK's generating capacity crisis. Gas power stations can be built in a few years, whereas nuclear plants take at least 10 to 12 years. The construction of new gas-fired power stations should be the policy priority.

In tandem, Britain would benefit from promoting domestic shale gas production. As North Sea gas declines, and Britain becomes reliant on gas imports from increasingly unstable regions of the world, there are major supply-side risks that may threaten Britain's energy security. Shale gas could be part of the solution, as there are believed to be large UK deposits of shale gas in the North West and Midlands.

The potential of shale gas to unlock future capacity is incredible. Gas prices in the USA have already more than halved. America is enjoying a new industrial renaissance based on cheap, natural gas; it will become increasingly difficult for the EU to compete. Moreover, America's reserves of shale gas could last for up to 500 years.

The alleged dangers of shale gas production have also been shown to be vastly overstated. While no extraction technology is without any risk, the safest techniques for recovering shale gas have been developed in the USA and are well understood. Shale gas operations in the USA, have proved remarkably unproblematic, especially by comparison to other methods of energy extraction.

The Government should therefore support the unsubsidised development of shale gas, provided safeguards are in place to protect local communities and the environment. In addition, income from the Community Income Levy could be used to spread the benefits via local community projects or lower council taxes. A Sovereign Wealth Fund, akin to Norway's could also be created via a tax on shale profits to ensure the benefits are shared.

It is also worth noting that promising research is also underway on the recovery of natural gas from methane hydrates found in the seabed; confirmed deposits could provide gas for centuries. However, a key concern here is that while the USA, Canada, Russia and Japan are working on this, Britain has little involvement. Our long experience of off-shore drilling should be exploited in this area.

## **2. Cut consumer costs: lift regressive green taxes**

Lifting restrictions on energy capacity will contribute to reducing the pressure on bills. However, energy bills for UK consumers will remain high as long as current green legislation, levies, and taxes remain in place.

Cutting energy bills during the current sustained period of economic insecurity should be a policy priority. Green legislation that raises bills should therefore be unwound. Britain should withdraw from the EU's Emissions Trading Scheme, repeal the Climate Change Act, and abolish the Carbon Reduction Commitment and feed-in tariffs.<sup>47</sup> Facilitating affordable energy and reducing fuel poverty is more effectively achieved by removing universal State-mandated costs than applying selective taxpayer-funded benefits.

## **3. Set energy free: scrap subsidies**

Subsidies have failed to innovate and deliver viable non-carbon-based energy because they remove the producer's incentive to compete in the marketplace. The only way to deliver viable renewable and nuclear technology is to restore that incentive by removing the subsidies.

Renewable and nuclear energy should be supported by private investment rather than subsidy. Relying on a private rather than a public funding stream will force producers to deliver profitable technologies that are competitive in the market and deliver value to energy consumers. Rather than direct subsidy to suppliers, public funding should be restricted to supporting academic research into renewable technology.

Coal power stations ideally could use clean technology to remove sulphur and nitrogen oxides, particulates and other pollutants, but this expensive process should also be undertaken with private investment, not subsidised by taxpayers.

In order to ensure a level playing field, tax breaks should also be removed for fossil fuels. By creating a free market in energy, we can ensure both the lowest prices for consumers and the most efficient allocation of energy investment.

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<sup>47</sup> However, it must be stressed that any action in this area should not breach existing contracts on feed-in tariffs.